

CLAIMS

What is claimed is:

1. A fin-and-tube type heat exchanger comprising:
 - 5 a plurality of fins disposed adjacent to each other with each of said fins defining a plane and having an upstream portion and a downstream portion;
 - a plurality of louvers formed in each of said fins with each louver extending at an angle with respect to said planes of said fins;
 - a plurality of tubes passing through said plurality of fins interconnecting said fins
 - 10 wherein said upstream portions of said plurality of interconnected fins define an incoming airflow side of said heat exchanger and said downstream portions of said plurality of interconnected fins define an outgoing airflow side of said heat exchanger;
 - and
 - said plurality of louvers defining a first bank of louvers formed in each of said
 - 15 upstream portions of said fins facing said incoming airflow side of said heat exchanger and a second bank of louvers formed in each of said downstream portions of said fins facing said incoming airflow side of said heat exchanger such that all of said louvers are facing the same direction toward said incoming airflow side whereby said louvers effectively redirect and mix an incoming flow of air and minimize an air pressure drop
 - 20 across said fins for increasing a heat transfer between said tubes, said fins, and the flow of air.
2. A heat exchanger as set forth in claim 1 wherein said louvers of said first bank of louvers are arranged in parallel with each other.
- 25 3. A heat exchanger as set forth in claim 2 wherein said louvers of said second bank of louvers are arranged in parallel with each other.
4. A heat exchanger as set forth in claim 1 wherein said plurality of louvers
- 30 consist of a plurality of first and second banks of louvers.

5. A heat exchanger as set forth in claim 1 wherein each of said louvers extend at a common angle with respect to said planes of said fins.

6. A heat exchanger as set forth in claim 1 wherein each of said louvers includes a leading edge and a trailing edge with said leading edge facing said incoming airflow side of said heat exchanger.

7. A heat exchanger as set forth in claim 6 wherein said leading edges of said louvers extend a common distance from said plane of said fin.

8. A heat exchanger as set forth in claim 6 wherein said trailing edge of a first louver is adjacent to a leading edge of a second subsequent louver in each of said first and second banks of louvers.

9. A heat exchanger as set forth in claim 1 wherein each of said fins includes a first outer surface and a second outer surface with each of said louvers extending outwardly from only said first outer surface such that said louvers all extend in a common direction.

10. A heat exchanger as set forth in claim 1 wherein each of said louvers has a common width.

11. A heat exchanger as set forth in claim 10 wherein each of said louvers of said first bank have a different length from each other.

12. A heat exchanger as set forth in claim 10 wherein each of said louvers of said second bank have a different length from each other.

13. A heat exchanger as set forth in claim 1 wherein said fins further define collars with said tubes being received within and fixedly mounted to said collars.

14. A heat exchanger as set forth in claim 1 further including spacers mounted to each of said fins for maintaining proper distances between adjacent fins.

15. A heat exchanger as set forth in claim 14 wherein said spacers are integrally
5 formed within said fins.